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EXAMINER	
KANTAMNENI, SHOBHA	
ART UNIT	PAPER NUMBER
1617	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/981,682	GRAHAM ET AL.	
	Examiner	Art Unit	
	Shobha Kantamneni	1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,9,11,13,14 and 17-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *NONE* is/are allowed.

6)☒ Claim(s) *1, 3-7,9,11, 13-14, 17-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Applicant's response field on 12/21/2006, wherein claims 3-6, and 17 have been amended. The amendment also cancelled claims 15-16.

Currently, claims 1, 3-7, 9, 11 and 13-14, and 17-20 are pending.

Applicant's amendment by canceling claims 15-16 is sufficient to overcome the objection to claims 15-16 made in the previous office action.

Applicant's arguments have been considered, but not found persuasive, the rejection of claims 1, 3-7, 9, 11, 13-14, 17-20 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of treating infection of a cell by a virus in a patient comprising administering a particular inhibitor of HMG-CoA reductase, **does not reasonably provide enablement for a method of inhibiting infection** of a cell by a virus in a patient is MAINTAINED. See under response to arguments.

Applicant's arguments have been fully considered, but not found persuasive, the rejection of claims 1, 3-7, 9, 11, 14, 17-20 under 35 U.S.C. 112, first paragraph, for scope of enablement because the specification, while being enabling for the method of treating infection of a cell by a virus in a patient comprising administering particular "inhibitor of HMG-CoA reductase" does not reasonably provide enablement for any compounds in general having functional properties recited in the claims herein is MAINTAINED. See under response to arguments.

Applicant's cancellation of claims 15-16 overcomes the rejection of claims 15-16 only under 35 U.S.C. 112, first paragraph, as failing to comply with enablement requirement.

Applicant's amendment is sufficient to overcome the rejection of claims 3-6 under 35 U.S.C. 112, second paragraph, as being vague.

Applicant's amendment is sufficient to overcome the rejection of claim 17 under 35 U.S.C. 112, second paragraph, as being indefinite.

Applicant's amendment is sufficient to overcome the rejection of claim 15 under 35 U.S.C. 112, second paragraph, as being indefinite.

Applicant's arguments have been fully considered, but not found persuasive, the rejection of claims 1, 3-7, 9, 11, 13-14 and 18-20 under 35 U.S.C. 103(a) as being unpatentable over Maziere et al. (C24, PTO-1449 submitted June 11, 2002) in view of Streckert et al. ("Epitopes at the proteolytic cleavage sites of HIV-1-gp120 and RSV-F protein share a sequence homology: comparative studies with virus-induced and antipeptide antibodies", PTO-892) and Mills (of record) is MAINTAINED.

Currently, claims 1, 3-7, 9, 11 and 13-14, and 17-20 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-7, 9, 11, 13-14, 17-20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of treating infection of a cell by a virus in a patient comprising administering a particular inhibitor of HMG-CoA reductase, **does not reasonably provide enablement for a method of inhibiting infection** of a cell by a virus in a patient. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention **commensurate in scope** with these claims.

The claims are directed to a method of inhibiting infection of a cell by a virus. The specification fails to adequately teach how to use the herein claimed method for inhibiting infection of a cell by a virus.

The instant specification fails to provide information that would allow the skilled artisan to practice the instant invention without undue experimentation. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

(1) the nature of the invention; (2) the state of the prior art; (3) the relative skill of those in the art; (4) the predictability or unpredictability of the art; (5) the breadth of the claims; (6) the amount of direction or guidance presented; (7) the presence or absence of working examples; and (8) the quantity of experimentation necessary.

(1) The Nature of the Invention:

The rejected claims are drawn to a method of inhibiting infection of a cell by a virus in a patient comprising administering an inhibitor of HMG-CoA reductase.

(2) Breadth of the Claims:

The instant claims embrace a variety of HMG-CoA inhibitors for inhibiting infection of a cell by a virus.

(3) Guidance of the Specification / Working Examples:

The instant specification on pages 27-28, provides data for lovastatin. It is disclosed that lovastatin decreases RSV replication in mice, and it is disclosed that the reduction of RSV infection depends on when the treatment is started i.e beginning 1 day after RSV infection, 3 days after infection etc. The treatment was most effective when given prior to infection or very early stages of infection.

In the instant case, no working examples are presented in the specification as filed showing how to inhibit i.e prevent infection of a cell by a virus in a patient in need of such treatment totally, absolutely, or permanently, not even occurring at the first time.

(4) State/predictability of the Art:

The relative skill of those in the art is high with respect to treating an infection of a cell by a virus in a patient.

However, the relative skill in the art and predictability is low with respect to inhibiting infection of a cell by a virus. "To inhibit" actually means "To prevent", which actually means to anticipate or counter in advance, to keep from happening etc. (as per Webster's II Dictionary). Pharmacological activity in general is a very unpredictable area. Note that in cases involving physiological activity such as the instant case, "the

scope of enablement varies inversely with the degree of unpredictability of the factors involved". See In re Fisher, 427 F.2d 833, 839 (1970). Infection of a cell claimed in the instant invention, are caused by different viruses. For example, HPV causes infection of a cell, and there is no known method in the art for the prevention of HIV infection. Further, note on page 13, lines 20-21 of the instant specification it is recited that "A vaccine has not been approved for the prevention of parainfluenza infection, and there is no truly effective antiviral therapy once disease is established. Thus the skilled artisan would view that **inhibiting i.e preventing infection of a cell by a virus** in a patient in need of such treatment totally, absolutely or permanently is highly unpredictable using the HMG-CoA reductase inhibitor.

(5) The Quantity of Experimentation Necessary:

There is no working example provided for inhibiting infection of a cell by a virus. Therefore, Applicant fails to provide information sufficient to practice the claimed invention, absent **undue experimentation**.

Genetech, 108 F.3d at 1366 states that "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "patent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

Therefore, in view of the Wands factors, e.g., the amount of direction or guidance provided, absence of working examples, and the predictability of the art discussed above, to practice the claimed invention herein, a person of skill in the art would have to test HMG-CoA reductase inhibitors, in the instant claims to be administered to a host

employed in the claimed methods of the particular treatments herein, with no assurance of success.

Accordingly the claims are evaluated as method of treating infection of cell by a virus, and not method of **inhibiting infection of a cell by a virus**.

Response to Applicant's Arguments:

Applicant's argues that "Inhibits means than an infection is somehow limited. While that might encompass prevention, inhibition could mean limiting of an existing infection or limiting of an impending infection." Applicant's remarks has been considered and acknowleged herein. It is respectfully pointed out that "To inhibit" actually means "To prevent", which actually means to anticipate or counter in advance, to keep from happening etc. (as per Webster's II Dictionary), and note that applicant also acknowledges that inhibition encompasses prevention. The skilled artisan would view that **inhibiting i.e preventing infection of a cell by a virus** in a patient in need of such treatment totally, absolutely or permanently is highly unpredictable using the HMG-CoA reductase inhibitor. Therefore, in view of the Wands factors as discussed above, the specification, while being enabling for a method of treating infection of a cell by a virus in a patient comprising administering a particular inhibitor of HMG-CoA reductase, does not reasonably provide enablement for a method of inhibiting infection of a cell by a virus in a patient.

Applicant argues that "Gower & Graham (2001) demonstrates benefit of administration prior to infection, thereby indicating that prevention of infection is taking place.....This article is far more relevant to the question of enablement for "prevention". This argument has been considered, but not found persuasive because the article discloses that RSV replication in lovastatin-treated mice was reduced by nearly 100-fold compared to results for untreated RSV-infected mice (Fig.2). It does not teach **preventing infection of a cell by a virus** in a patient in need of such treatment totally, absolutely or permanently, not even occurring at the first time.

Claims 1, 3-7, 9, 11, 14, 17-20 are rejected under 35 U.S.C. 112, first paragraph, for scope of enablement because the specification, while being enabling for the method of treating infection of a cell by a virus in a patient comprising administering particular "inhibitor of HMG-CoA reductase" does not reasonably provide enablement for any compounds in general having functional properties recited in the claims herein.

This recitation "an inhibitor of HMG-CoA reductase" is seen to be merely functional language.

The instant specification fails to provide information that would allow the skilled artisan to fully practice the instant invention without undue experimentation. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

(1) the nature of the invention; (2) the state of the prior art; (3) the relative skill of those in the art; (4) the predictability or unpredictability of the art; (5) the breadth of the claims; (6) the amount of direction or guidance presented; (7) the presence or absence of working examples; and (8) the quantity of experimentation necessary.

The nature of the invention: The claims are drawn to a method of treating infection of a cell by a virus comprising administering an inhibitor of HMG-CoA reductase.

The relative skill of those in the art: The relative skill of those in the art is high.

The breadth of the claims: The instant claims are deemed very broad since the broadest claim (i.e., claim 1) reads on any compounds having functional properties recited in the claims herein.

The amount of direction or guidance presented:

Functional language at the point of novelty, as herein employed by Applicants, is admonished in *University of California B. Eli Lilly* and Co. 43 USPQ2d 1398 (CAFC, 1997) at 1406: stating this usage does "little more than outline goal appellants hope the recited invention achieves and the problems the invention will hopefully ameliorate". The CAFC further clearly states that "[A] written description of an invention involving a chemical genus, like a description of a chemical species, requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials" at 1405 (emphasis added), and that "It does not define any structural features commonly possessed by members of the genus that distinguish from others. One skilled in the art therefore cannot, as one can do with a

fully described genus, visualize or recognize the identity of the members of the genus. A definition by function, as we have previously indicated, does not suffice to define the genus.." at 1406 (emphases added).

In the instant case "an inhibitor of HMG-CoA reductase" recited in the instant claims are purely functional distinction. Hence, this functional recitation read on any compounds that might have the recited functions. However, the specification merely provides compounds such as lovastatin, simvastatin, fluvastatin, atorvastatin, and mevastatin for functional compounds in the instantly claimed method (page 16, lines 22-27 of the specification herein).

Thus, Applicants functional language at the points of novelty fails to meet the requirements set forth under 35 U.S.C. 112, first paragraph. Claims employing functional language at the exact point of novelty, such as Applicants', neither provide those elements required to practice the inventions, nor "inform the public during the life of the patent of the limited of monopoly asserted" (Genera Electric Company v. Wabash Appliance Corporation et al. 37 USPQ at 468 (US Supreme Court 1938)).

The predictability or unpredictability: The instant claimed invention is highly unpredictable as discussed below:

In the instant case, the instant claimed invention is highly unpredictable since one skilled in the art cannot fully describe genus, visualize or recognize the identity of the members of the genus, by structure, formula, or chemical name, of the claimed subject matter, as discussed above in *University of California B. Eli Lilly and Co.* Hence, in the absence of fully recognizing the identity of the members of genus herein, one of

skill in the art would be unable to fully predict possible physiological activities of any compounds having claimed functional properties in the pharmaceutical compositions herein.

The presence or absence of working examples and the quantity of experimentation necessary:

As discussed above, only those particular compound for functional compounds employed in the composition herein is disclosed in the specification. Moreover, it is noted that the specification merely provide one particular compound lovastatin in working examples (see pages 27-28). Thus, the evidence in the examples is not commensurate in scope with the claimed invention and does not demonstrate criticality of a claimed range compounds in the claimed method. See MPEP 716.02(d).

Thus, the specification fails to provide sufficient support of the broad use of any compounds having those functions recited in the instant claims. As a result, necessitating one of skill to perform an exhaustive search for the embodiments of any compounds having those functions recited in the instant claims suitable to practice the claimed invention.

Response to Applicant's Arguments:

Applicant argues that "The examiner is directed to the USPTO's website, where a search for the term "HMG-CoA reductase inhibitor" revealed some 131 patents using this language in their claims. Thus, it is incumbent upon the examiner to explain why, in this particular instance, the term is improperly utilized." This argument has been

considered, but not found persuasive. It is respectfully pointed out that examiner cannot comment on the issued patents.

As discussed above, only those particular compound for functional compounds employed in the method herein is disclosed in the specification. The specification merely provide one particular compound lovastatin in working examples (see pages 27-28). Thus, the evidence in the examples is not commensurate in scope with the claimed invention and does not demonstrate criticality of a claimed range compounds in the claimed method. See MPEP 716.02(d).

Claim 17 is further rejected under 35 U.S.C. 112, first paragraph, as failing to comply with enablement requirement. The claim(s) contains subject matter which was not described in specification in such as way to enable one skilled in the art to which it pertains, or with which it is most nearly connected to make and/or use the invention.

The claims are directed to a method of treating infection of a cell by a virus comprising administering an inhibitor of HMG-CoA reductase, and an antibody composition that binds immunologically to RSV as in claim 17. The specification fails to adequately teach how to use the herein claimed method by using a combination of an inhibitor of HMG-CoA reductase with an antibody composition for treating infection of a cell by a RSV virus.

The instant specification fails to provide information that would allow the skilled artisan to fully practice the instant invention without undue experimentation. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set

forth the eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApls 1986) at 547 the court recited eight factors:

(1) the nature of the invention; (2) the state of the prior art; (3) the relative skill of those in the art; (4) the predictability or unpredictability of the art; (5) the breadth of the claims; (6) the amount of direction or guidance presented; (7) the presence or absence of working examples; and (8) the quantity of experimentation necessary.

(1).The nature of the invention: The claims are drawn to a method of treating infection of a cell by RSV virus comprising administering an inhibitor of HMG-CoA reductase in combination with any antibody composition that binds immunologically to RSV.

(2) Breadth of the Claims:

The instant claims embrace a variety of HMG-CoA inhibitors in combination with any antibody composition that binds immunologically to RSV for treating infection of a cell by a virus such as RSV.

(3) Guidance of the Specification

The instant specification on pages 27-28, provides data for lovastatin. It is disclosed that lavastatin decreases RSV replication in mice.

In the instant case, no working examples are presented in the specification as filed showing how to treat an infection of a cell by a RSV virus in a patient in need of such treatment by administering HMG-CoA reductase inhibitor in combination with any antibody composition that binds immunologically to RSV.

(4) The predictability or unpredictability:

Pharmacological activity in general is a very unpredictable area. One of skill in the art would recognize that it is highly unpredictable in regard to therapeutic effects, and side effects, especially serious toxicity that may be generated by drug-drug interactions when and/or after administration of the combination of any antibody composition that binds immunologically to RSV with "a HMG-CoA reductase inhibitor" which may encompass more than a thousand compounds. See text book Goodman & Gilman's The Pharmacological Basis of Therapeutics" regarding possible drug-drug interactions (9th ed 1996) page 51 in particular. This book teaches that "The frequency of significant beneficial or adverse drug interactions is unknown" (see the bottom of the left column of page 51) and that "Recognition of beneficial effects and recognition of and prevention of adverse drug interactions require a thorough knowledge of the intended and possible effects of drugs that are prescribed" and that "The most important adverse drug-drug interactions occur with drugs that have serious toxicity and a low therapeutic index, such that relatively small changes in drug level can have significant adverse consequences" (see the right column of page 51) (emphases added). In the instant case, one of skill in the art would not be able to fully predict possible adverse drug-drug interactions occurring with many combinations of any antibody composition with an inhibitor of HMG-CoA when administered to a patient. Thus, the teachings of the book clearly support that the instant claimed invention is highly unpredictable.

(5) The presence or absence of working examples and the quantity of experimentation necessary:

The specification merely provides one particular compound lovastatin in working examples (see pages 27-28). The specification does not provide any combination of HMG-CoA reductase inhibitor with an antibody composition in the method of treatment of infection of a cell by a RSV virus. See MPEP 716.02(d).

Thus, the specification fails to provide sufficient support of the use of any antibody composition composition that binds immunologically to RSV in combination HMG-CoA reductase inhibitor as recited in the instant claims. As a result, necessitating one of skill to perform an exhaustive search for the embodiments any antibody compositions recited in the instant claims suitable to practice the claimed invention.

Genentech, 108 F.3d at 1366, states that "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

Response to Applicant's Arguments:

Applicant argues that "it is well known that examples are not required to establish enablement." This argument has been considered, but not found persuasive because pharmacological activity in general is a very unpredictable area. One of skill in the art would recognize that it is highly unpredictable in regard to therapeutic effects, and side effects, especially serious toxicity that may be generated by drug-drug interactions when and/or after administration of the combination of any antibody composition that binds immunologically to RSV with "a HMG-CoA reductase inhibitor" which may encompass more than a thousand compounds. See text book Goodman & Gilman's The

Pharmacological Basis of Therapeutics" regarding possible drug-drug interactions (9th ed 1996) page 51 in particular. It is pointed out that lack of working example, is a factor that needs to be considered in case of unpredictable art such as the instant invention as discussed above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-7, 9, 11, 13-14 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maziere et al. (C24, PTO-1449 submitted June 11, 2002) in view of Streckert et al. ("Epitopes at the proteolytic cleavage sites of HIV-1-gp120 and RSV-F protein share a sequence homology: comparative studies with virus-induced and antipeptide antibodies", PTO-892) and Mills (of record), rejection of record.

Maziere et al. teaches that HMG-CoA reductase inhibitors, such as lovastatin, are useful in a method of inhibiting HIV infective cycle in AIDS patients since lovastatin inhibits HIV-1 expression in H9 human T lymphocytes or viral multiplication. See in Maziere et al., the title, "Summary", and page 66 "Conclusion". Maziere et al. also teaches that the particular nucleoside analog, AZT, is known to be useful in treating viral infection by inhibiting viral replication in humans. See "Introduction" page 63 the left column.

Maziere et al. do not expressly disclose the employment of HMG-CoA reductase inhibitors in a method of inhibiting infection of a cell by a virus which is respiratory syncytial virus (RSV) in a human, a non-human mammal, or a livestock animal. The above cited prior art also does not expressly disclose the employment of HMG-CoA reductase inhibitor in combination with ribavarin in a method of inhibiting infection of a cell by a virus in a subject.

Streckert et al. teaches that "the proteolytic cleavage sites of the human immunodeficiency virus type 1 (HIV-1) envelope glycoprotein precursor gp160 and the fusion protein of respiratory syncytial virus (RSV) show a sequence homology."(emphasis added). See abstract.

Mills teaches that ribavarin is a known antiviral agent or drug for RSV infections. The combination of ribavarin and other antiviral agents are also known in the art. See page 39-41.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ a HMG-CoA reductase inhibitor in a method of inhibiting infection of a cell by a virus such as RSV in a human, a non-human mammal, or a livestock animal, and to employ a HMG-CoA reductase inhibitor in combination with ribavarin in a method of inhibiting infection of a cell by a virus.

One having ordinary skill in the art at the time the invention was made would have been motivated to employ a HMG-CoA reductase inhibitor in a method of inhibiting infection of a cell by a virus such as RSV in a human, a non-human mammal, or a livestock animal, since a HMG-CoA reductase inhibitor such as lovastatin is known to

be useful in a method for inhibiting infection of a cell by a virus, i.e., inhibiting HIV infective cycle in AIDS patients, by inhibiting HIV-1 expression in H9 human T lymphocytes or viral multiplication according to Maziere et al.

Further, both RSV and HIV are known enveloped viruses and it is also known that "the proteolytic cleavage sites of the human immunodeficiency virus type 1 (HIV-1) envelope glycoprotein precursor gp160 and the fusion protein of respiratory syncytial virus (RSV) show a sequence homology, according to Streckert et al. Thus, one of ordinary skill in the art would have reasonably expected that lovastatin would also be able to inhibit RSV infective cycle and multiplication as it inhibits HIV infective cycle and multiplication, since both RSV and HIV are known enveloped viruses and show a sequence homology. Thus, they share a common mechanism-fusion of the viral envelop.

Therefore, one of ordinary skill in the art would have reasonably expected that an HMG-CoA reductase inhibitor would have a beneficial therapeutic effect in inhibiting infection of a cell by a virus such as RSV in a human, a non-human mammal, or a livestock animal.

Additionally, one having ordinary skill in the art at the time the invention was made would have been motivated to add ribavarin in a method of inhibiting infection of a cell by a virus such as RSV, since ribavarin is known to be useful in treating viral infection including RSV by inhibiting viral replication in humans, and combination therapy for treating viral infections is well known in the art.

Thus the claimed invention as a whole is clearly prima facie obvious over the combined teachings of the prior art.

Response to Arguments

Applicant argues that "examiner is improperly attempting to link the lovastatin teachings of Maziere to RSV using Streckert reference, which is said to teach a common feature between HIV and RSV. ...Why would one choose to select Streckert, which allegedly shows commonality in the fusion proteins of HIV and RSV, and ignore a host of other references that teach differences between HIV and RSV? ....The examiner is continuing to conduct an improper hindsight reconstruction of the invention using applicant's claims." This argument has been considered, but not found persuasive because Maziere et al. teach that HMG-CoA reductase inhibitor Lovastatin inhibited viral multiplication, and also teaches that reducing cholesterol in cellular membranes slowes the HIV propagation. It is further taught that cholesterol is an important requirement for building infectious forms of the virus. See abstract; page 63, right hand column. One having ordinary skill in the art at the time the invention was made would have been motivated to employ a HMG-CoA reductase inhibitor in a method of inhibiting infection of a cell by a virus such as RSV in a human, a non-human mammal, or a livestock animal, since a HMG-CoA reductase inhibitor such as lovastatin is known to be useful in a method for inhibiting infection of a cell by a virus, i.e., inhibiting HIV infective cycle in AIDS patients, by inhibiting HIV-1 expression in H9 human T lymphocytes or viral multiplication according to Maziere et al. Further, both RSV and HIV are known enveloped viruses and it is also known that "the proteolytic cleavage

sites of the human immunodeficiency virus type 1 (HIV-1) envelope glycoprotein precursor gp160 and the fusion protein of respiratory syncytial virus (RSV) show a sequence homology, according to Streckert et al. Thus, one of ordinary skill in the art would have reasonably expected that lovastatin would also be able to inhibit RSV infective cycle and multiplication as it inhibits HIV infective cycle and multiplication, since both RSV and HIV are known enveloped viruses and show a sequence homology. Further, according to Maziere et al. cholesterol is an important requirement for building infectious forms of the virus. Thus, one of ordinary skill in the art at the time of invention would have reasonably expected that by administering of HMG-CoA reductase inhibitors, which are known to slow the production of cholesterol, would also inhibit the building of infectious forms of the virus.

Therefore, one of ordinary skill in the art would have reasonably expected that an HMG-CoA reductase inhibitor would have a beneficial therapeutic effect in inhibiting infection of a cell by a virus such as RSV in a human, a non-human mammal, or a livestock animal.

Further, in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

No claims are allowed.

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period, will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shobha Kantamneni whose telephone number is 571-272-2930. The examiner can normally be reached on Monday-Tuesday, Thursday-Friday, 8am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan, Ph.D can be reached on 571-272-0629. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shobha Kantamneni, Ph.D
Patent Examiner
Art Unit : 1617

SREENI PADMANABHAN
SUPERVISORY PATENT EXAMINER